Link to Bio-Rad Bio-Plex 200 Array Reader/ Flow Cytometer

Logon: Admin/rewind (delete this banner before publishing)

MACSQuant Analyzer at BRDG park

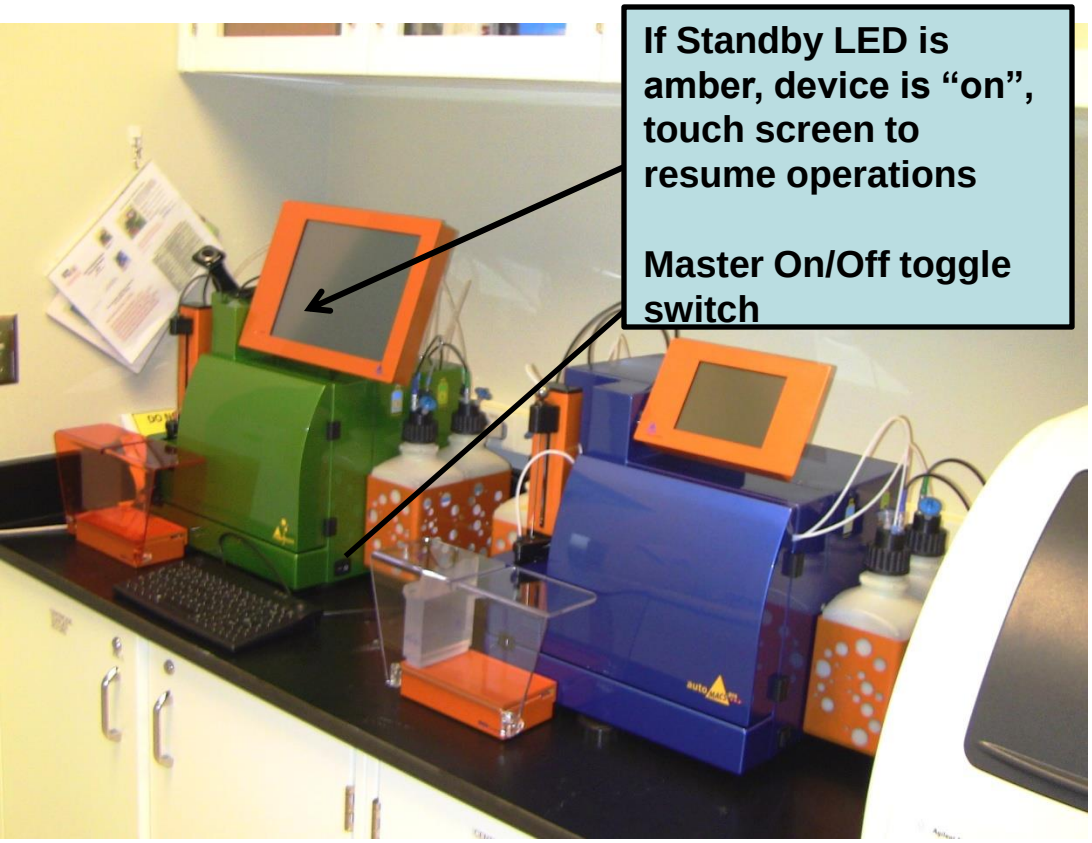
Flow Cytometers Sorting/Analysis

Select instrument picture to jump to that section of the SOP

autoMACS Pro Separator at BRDG park

Prepared by: Bob Morrison
STLCC- Instrumentation Specialist
Original Sep 10, Latest revision July 2012

Flow Cytometer: MACSQuant Analyzer



The MACSQuant® Analyzer is a compact benchtop flow cytometer that is small in size but big in performance. The instrument can fit into confined laboratory spaces, including laminar flow cabinets. In spite of this extraordinary compact design (60 x 35 x 40 cm), the MACSQuant Analyzer offers many outstanding features, including:

Stable optics: three robust lasers (violet, blue, red) are secured unto the optical bench

Absolute cell counting: exact volumetric pipetting using the robotic arm

Multiparameter flow analysis: seven fluorescence and two scatter channels

Flexible: wide choice of fluorochromes may be used for multicolor cell characterization

MACSQuant and autoSeparator @BRDG R126B

Lauren Handley, PhD (sales)
Lauren.Handley@miltenyibiotec.com

Robert Wegener (field service rep)
robert.wegener@miltenyibiotec.com

Hotlink to MACSQuant technical sheet… pdf

Hotlink to MACSQuant Software free 30-day trail …

Flow Cytometry: MACSQuant Manuals and QuickStart Guides

Hotlink to MACSQuant User Manual ….. Pdf (18mb)

Hotlink to MACSQuant Instrument Setup QuickStart ….. Pdf (1mb)

Hotlink to MACSQuantify Version 2.4_2.5 Updates ….. Pdf (1mb)

Hotlink to MACSQuantify Version 2.5 New Features ….. Pdf (1mb)

Hotlink to MACSQuant Photomultiplier Tube Calibration QuickStart ….. Pdf (<1mb)

Hotlink to MACSQuant Icons and Edit Menu QuickStart ….. Pdf (<1mb)

Hotlink to MACSQuant Compensation of Spectral Overlap QuickStart ….. Pdf (<1mb)

Hotlink to MACSQuant Setting Up an Experiment QuickStart ….. Pdf (<1mb)

Hotlink to MACSQuant Automated Labeling and Multisample Quickstart…..pdf

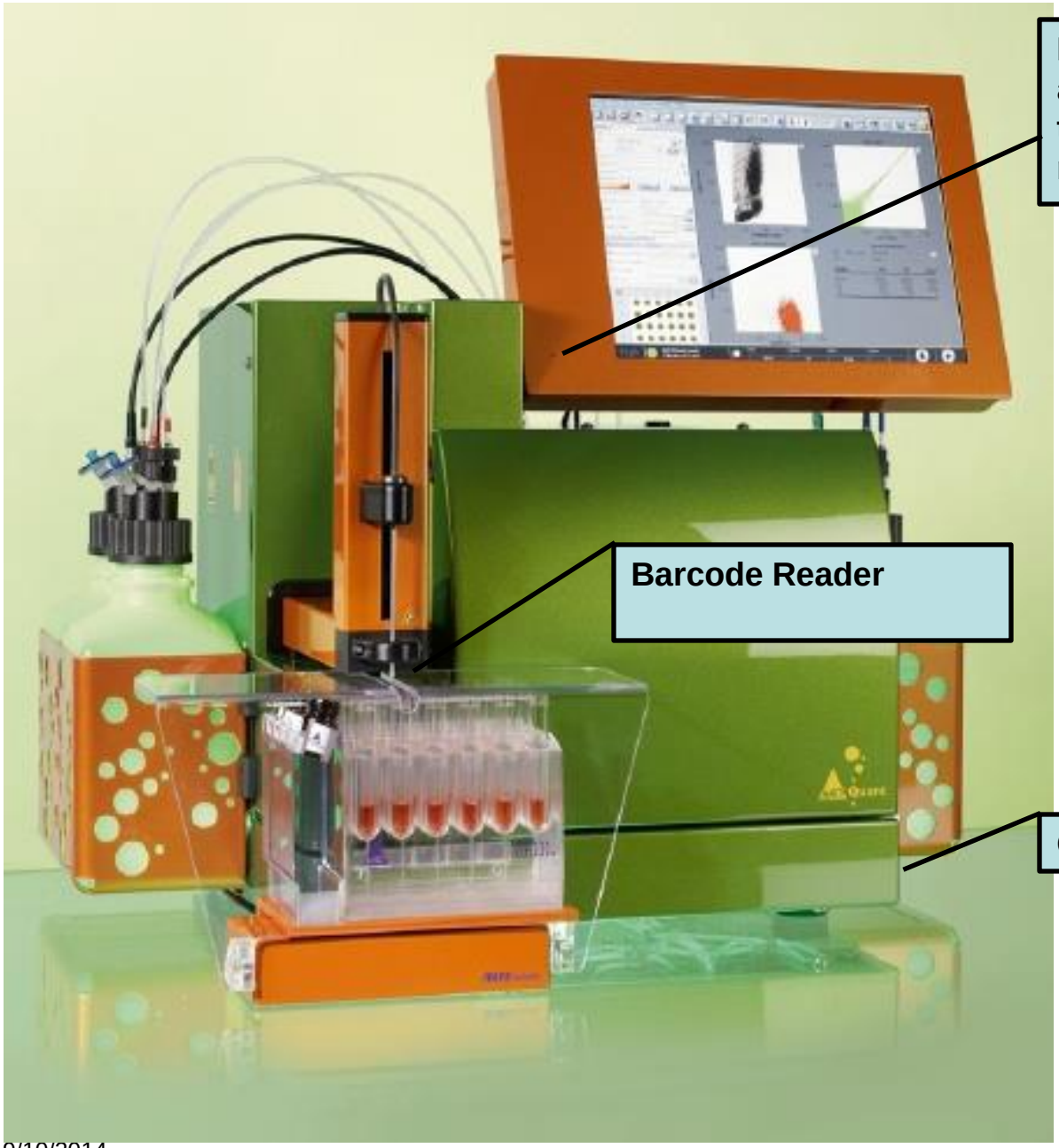
Hotlink to MACSQuant and autoMACS Separator Supply Inventory Database

Hotlink to MACSQuant and Separator Maint Contract 2012 ($20K/yr) Fwd… pdf

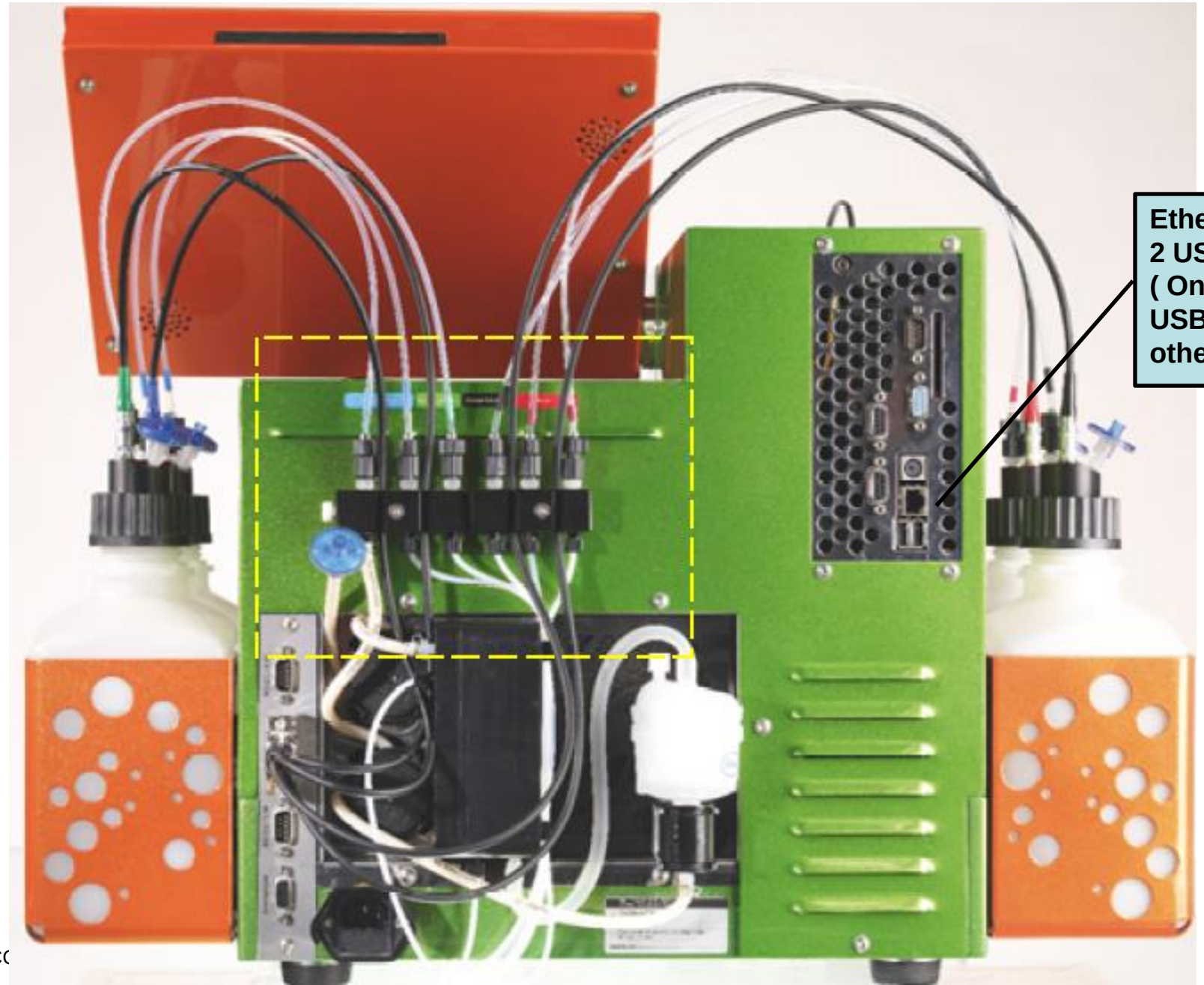
Flow Cytometry: MACSQuant Specifications

Instrument specifications	3 air-cooled lasers (excitation wavelengths: 405 nm, 488 nm, and 635 nm)
Optical parameters	FSC, SSC, and seven fluorescence channels
Default detection dyes	Violet laser: VioBlue™, Hoechst dyes, Pacific Blue™ Blue laser: FITC, PE, PI/PE-Cy5.5, PE-Cy7 Red laser: APC, APC-Cy7
Compensation	Automated 7 × 7 matrix (during or post-acquisition)
Analysis rate	Up to 10,000 events/second
Absolute count performance	Accuracy +/- 5% (reproducibility (CV): <5%)
Fluorescence performance	5 decade logarithmic scales
Fluorescence resolution	<5% CVs (for FITC/PE/APC)
MACS® Cell Enrichment Unit	For pre-analysis enrichment of rare cell subsets
Sample type	Single tubes, Chill Racks for 5 mL / 15 mL / 50 mL tubes, 96-well plates
Minimal sampling volume	25 µL
System cleaning	Automated start up, cleaning cycles and shutdown
Sample uptake	Uptake port (for y- and z-movements) with an automated washing station
2D barcode reader	Automated data entry and instrument operation
Operating system	Microsoft® Windows®
Ports	USB-2, Ethernet, VGA port
Monitor	12" touch screen (internal)
Data file	MACSQuant Data (MQD) or Flow Cytometry Standard (FCS) formats
Writer	DVD writer (internal)
Power consumption	350 W
Size (W × D × H)	600 × 350 × 400 mm (23.6 × 13.8 × 15.7 inch)
Weight	50 kg
Certification	UL-listed and CE-marked

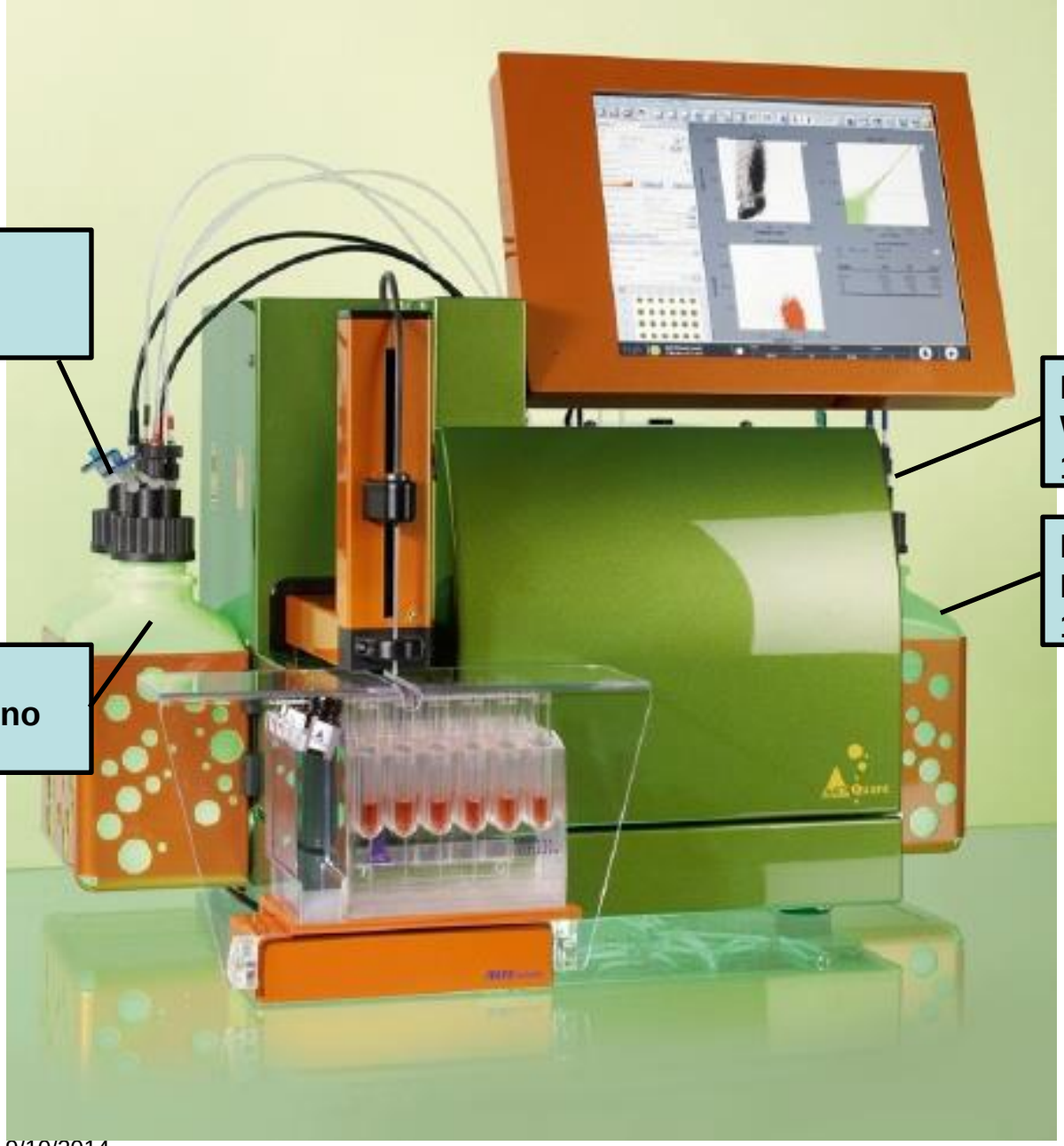
Flow Cytometry: MACSQuant; Key Components



Flow Cytometry: MACSQuant, Rear View



Flow Cytometry: MACSQuant; Buffers, Solutions Layout



Rear position
Storage
130-092-748

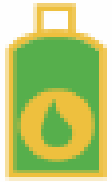
Front position
Waste - no partno

Rear position
Wash Solution
130-092-749

Front position
Buffer Solution
130-092 -747

Not Shown
Clean/Flush Bleach
130-093-663

Flow Cytometer: MACSQuant; Buffers and Solutions

Container	Symbol	Container	Symbol
Running Buffer (blue)		Storage solution (black)	
Washing solution (green)		Waste (red)	

Description	Color code	Capacity	Order no.
MACSQuant® Analyzer Running Buffer	Blue	6 x 1.5 L	130-092-747
MACSQuant® Analyzer Washing Solution	Green	6 x 1.5 L	130-092-749
MACSQuant® Analyzer Storage Solution	Black	6 x 1.5 L	130-092-748
MACSQuant® Starting Buffer pack		4x 1.5 L 1x1.5 L 1x 1.5 L	130-094-190
MACSQuant® Washing & Storage Solution Kit	n/a	3 x 1.5 L 3 x 1.5 L	130-092-801
MACS Bleach Solution	Black	6 x 1.0 L	130-093-663

Flow Cytometry: MacQuant, Calibration Beads

The MACSQuant® Calibration Beads are 2 and 3 µm in size and enable the adjustment of the voltage settings of the MACSQuant Analyzer. In addition, the 3 µm size particles are stained with multiple fluorescent dyes, whose emission spectra are compatible with many commonly used fluorochromes for flow cytometry. The MACSQuant Calibration Beads are excited by light between 400 nm and 650 nm to yield emission in all fluorescent channels. This enables the successful calibration of the laser settings of the MACSQuant Analyzer.

MACSQuant Calibration Beads - 100 test

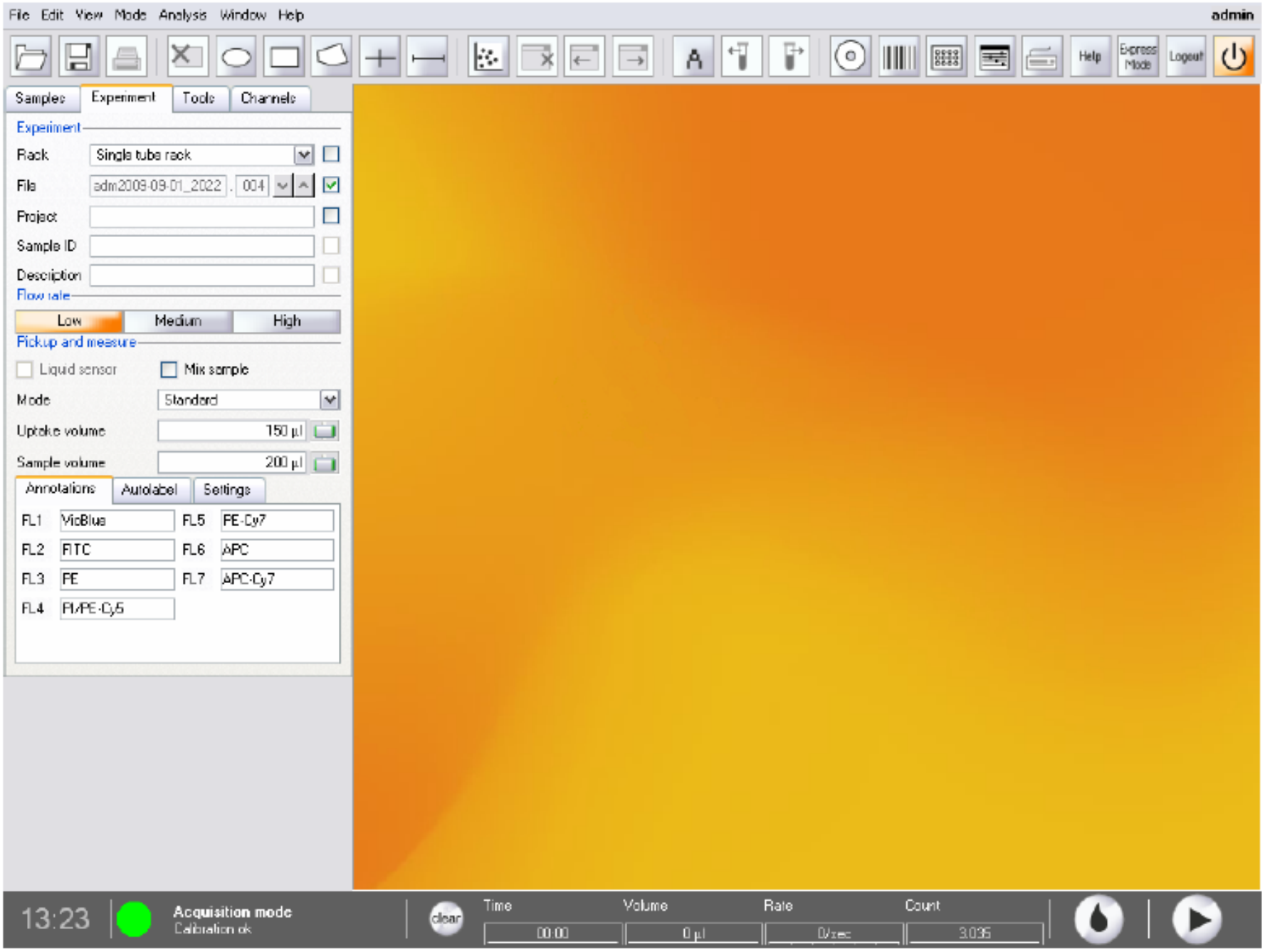
PN : **130-093-607**

Flow Cytometry: Macquant, Columns

The MACSQuant® Columns are specifically designed for the use with the MACS® Cell Enrichment Unit, which is integrated on the MACSQuant Analyzer.
The MACSQuant Columns provide the ability to perform flow cytometric analysis of rare cell populations in a fraction of the time. Magnetically and fluorochrome labeled cells are pre-enriched in the MACSQuant Column when the magnet in the MACS Cell Enrichment Unit is activated immediately prior to cell analysis. The entire process of sample labeling, pre-enrichment and flow cytometry analysis is fully automated by the MACSQuantify™ Software.

MACSQuant Columns Components
- 2 MACSQuant Columns
PN: 130-094-458

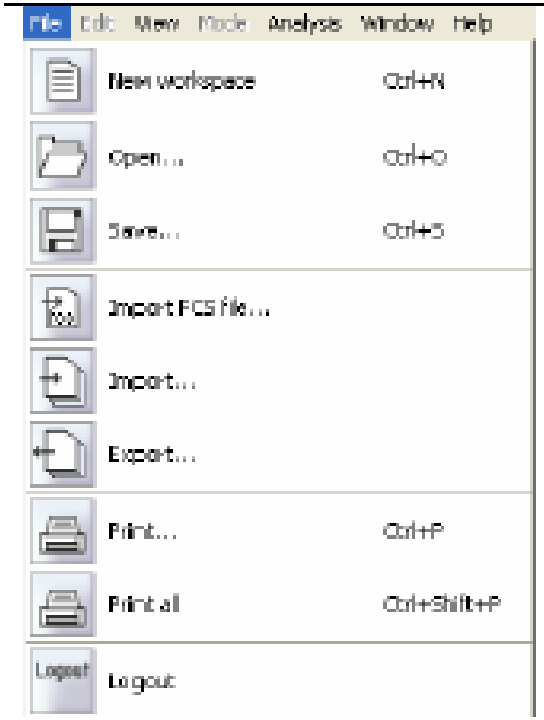
Flow Cytometer: MACSQUANT; Top Menu Bar



Flow Cytometry: MACSQuant Software, Tool bar icons

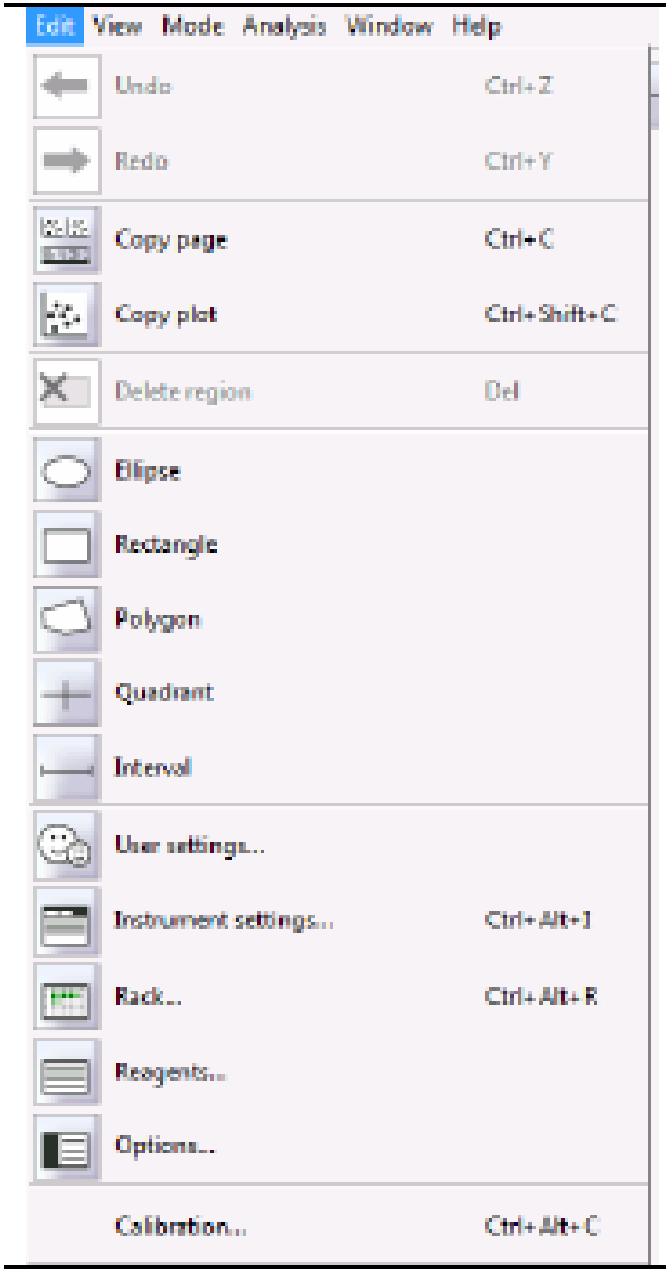
Icon	Description	Icon	Description
	Folder icon to open Workspaces, Instrument Settings, Experiments, Analysis templates and/or Data files, depending on user access rights set by the administrator.		Activate the Analysis template tool
	Click to save Workspaces, Instrument settings and Experiments, depending on user access rights set by the administrator		Scroll through samples listed in the samples window
	Print		Backup or transport data.
	Delete a region that was created in a dot plot or histogram.		Activate the reagent barcode scanner.
	Draw a region in a dot plot, i.e., to define an area of interest. Ellipse, rectangular and polygonal regions can be drawn.		Open the rack dialog box.
			Open the instrument settings dialog box
			Activate touch screen keyboard
	Draw a quadrant in a dot plot.		Open help file and manual.
	Draw an interval in a histogram.		Switch to Express mode.
	Open a new analysis window.		Logout user from session
	Close analysis window.		Main instrument control. Click to switch between Acquisition mode or Data analysis mode. The instrument may also be switched-off using this button.
	Scroll through open analysis windows in a reverse and forward direction.	admin	Name of user in the top right corner, in this example, the administrator (admin) is logged-in.

Flow Cytometry: MACSQuant Software, File icon



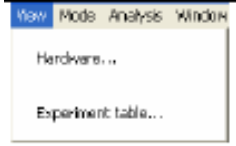
Command	Description
New workspace	Create a new workspace. The user will be prompted to save any changes to the workspace before this action is performed.
Open...	Open Workspaces, Instrument Settings, Experiments, Analysis templates and/or Data files, depending on the user access rights set by the administrator.
Save...	Click to save Workspaces, Instrument settings, Experiments, Reagents and Analysis templates, depending on user access rights set by the administrator.
Import FCS file	Import data files in the FCS file compression format.
Import...	Import data files from an external media source, e.g., external hard drive
Export...	Export data files to external media, e.g. external hard drive
Print...	Print a selected area.
Print all	Print the entire workspace.
Logout	Logout of the current session

Flow Cytometry: MACSQuant Software, Edit icon



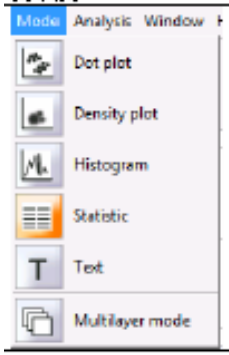
Command	Description
Undo/ Redo	Undo or redo the most recently performed action, e.g., undo - create region.
Copy page	Copy the entire analysis window to the clipboard. All dot plots and tables are copied.
Copy plot	Copy a single selected plot/histogram highlighted in green.
Delete region	Delete a region that was created in a dot plot..
Ellipse, Rectangle, Polygon, Quadrant, Interval	Create the afore mentioned geometric shape in a plot.
User settings...	Create and/or modify user account settings. **Administrator only.**
Instrument settings...	Modify the instrument settings comprising Channel, Compensation and Custom.
Rack...	To edit the sample rack settings.

Flow Cytometry: MACSQuant Software; View, Mode, Analysis, Window Icons



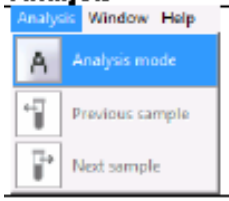
Command	Description
Hardware	To view the hardware settings comprising Fludics, Sample uptake unit, Lasers and detectors, Camera and System settings.
Experiment table	Provides a tabulated overview of experiment details: **Acquisition**, **Annotations**, **Autolabel** and **Settings**.

Mode



Command	Description
Dot plot, Density plot, Histogram, Statistic, Text	Click icon to change the presented data format into another format, e.g., from a dot plot into a histogram.
Multilayer mode.	View data in a multilayer format

Analysis



Command	Description
Analysis mode	Activate Analysis template tool.
Previous sample/ Next sample	Scroll through analysis windows in a reverse and forward direction.

Window

Command	Description
New analysis window	Open a new analysis window using predefined templates.
Clone window	An exact clone/copy of the analysis window is made. This includes gating strategies and open data files.
Close/Close all	Close a selected analysis window/close all analysis windows.
Previous window / Next window	Sequentially scroll through analysis windows, i.e., previous and next analysis window.

Flow Cytometer: MACSQuant; Manual Shutdown

If no further measurements are required, shut down the instrument as follows:

1) Click to select 'data analysis mode' or 'instrument off'.

   This automatically starts a washing protocol that lasts for approximately seven minutes, which includes an incubation of the washing solution in the fluidics followed by the flushing of the washing solution and replacement with the storage solution.

Note: Data can be analyzed using the software interface even after the instrument has been shutdown using the analysis mode.

Flow Cytometer: MACSQuant; Automatic Shutdown Setup

1) Click **Edit**, **Options...**, **Software** and **Timers**.

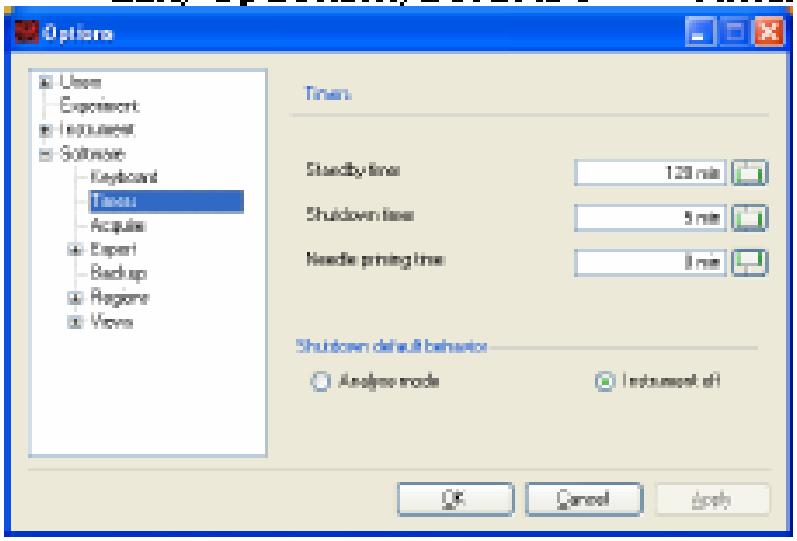


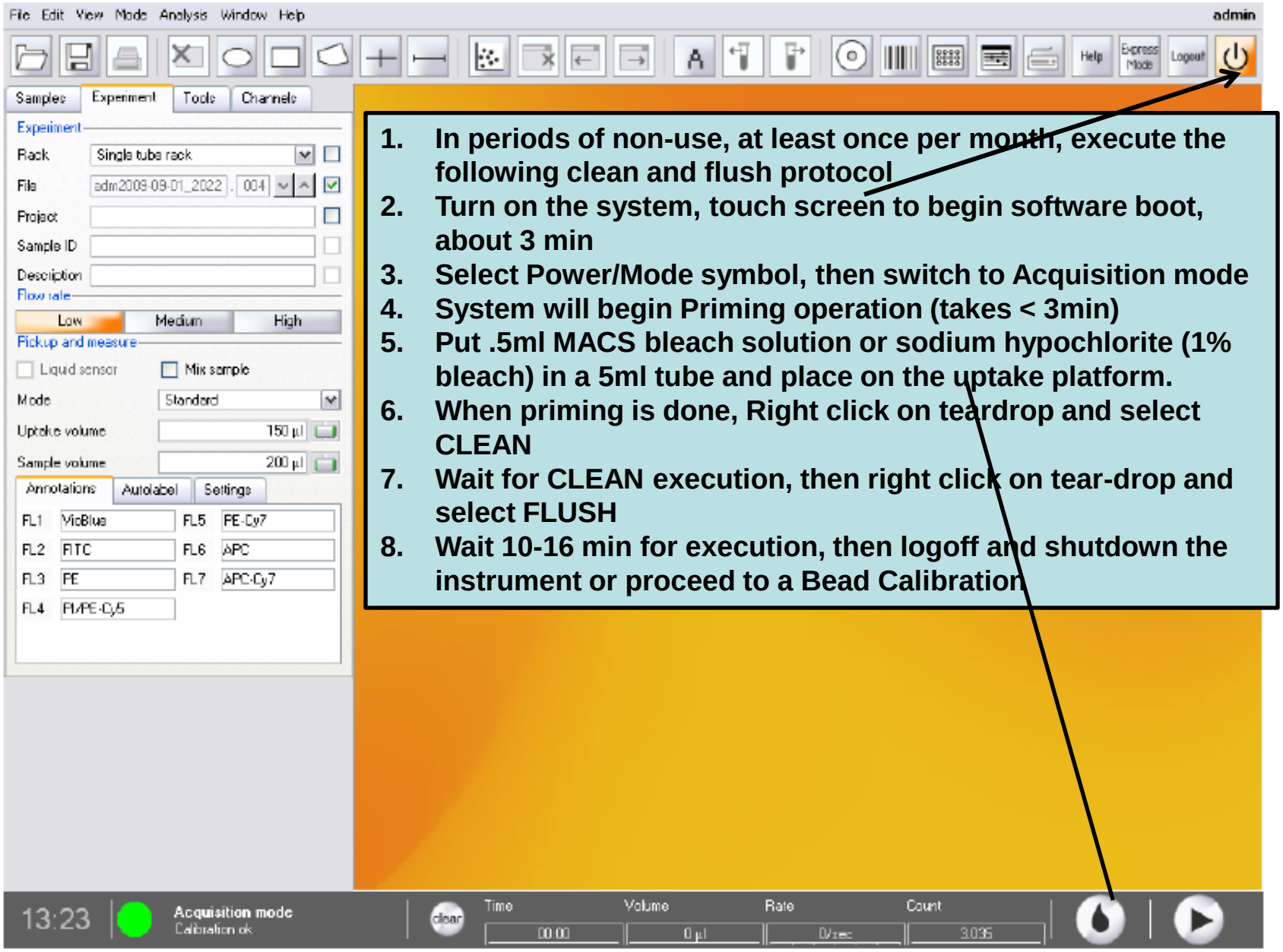
Figure 7.1 Timers window

2) Click on the **Shutdown time** field. Modify the time (minutes) using the slider bar or keyboard.

3) Click **Apply** and **OK**.

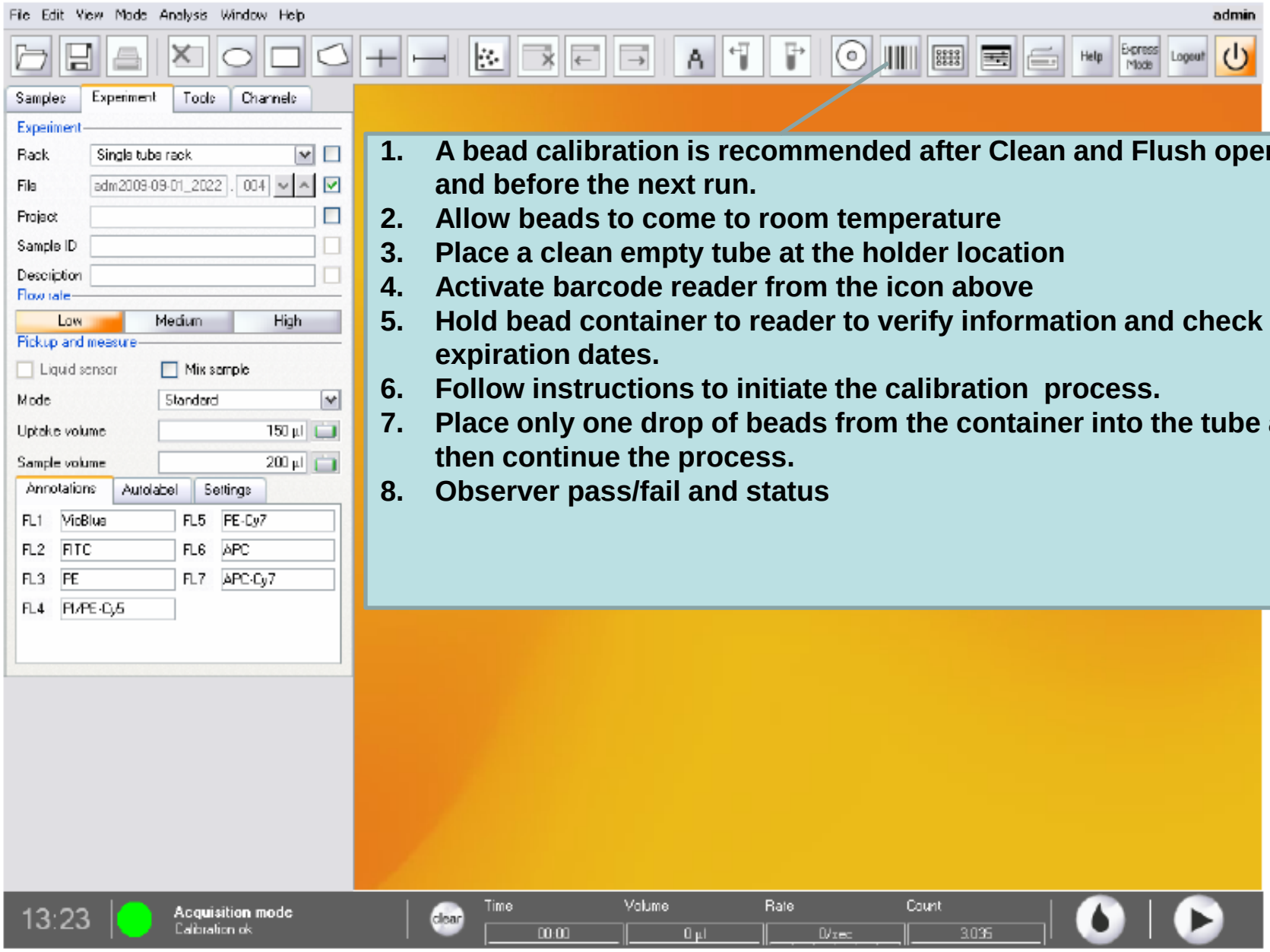
Note: See section 6.11 for an overview of the MACS Quantify Software **Options** window.

Flow Cytometer: QUANT; Maintenance; Clean, Flush



1. In periods of non-use, at least once per month, execute the following clean and flush protocol
2. Turn on the system, touch screen to begin software boot, about 3 min
3. Select Power/Mode symbol, then switch to Acquisition mode
4. System will begin Priming operation (takes < 3min)
5. Put .5ml MACS bleach solution or sodium hypochlorite (1% bleach) in a 5ml tube and place on the uptake platform.
6. When priming is done, Right click on teardrop and select CLEAN
7. Wait for CLEAN execution, then right click on tear-drop and select FLUSH
8. Wait 10-16 min for execution, then logoff and shutdown the instrument or proceed to a Bead Calibration

Flow Cytometer: QUANT; Maintenance; Bead Calibration



1. A bead calibration is recommended after Clean and Flush operations and before the next run.
2. Allow beads to come to room temperature
3. Place a clean empty tube at the holder location
4. Activate barcode reader from the icon above
5. Hold bead container to reader to verify information and check expiration dates.
6. Follow instructions to initiate the calibration process.
7. Place only one drop of beads from the container into the tube and then continue the process.
8. Observer pass/fail and status

Flow Cytometry: MACQUANT; Monthly Clean, Flush, Calibration Recommended

Robert Wegener robertwe@miltenyibiotec.com sent Mon 4/25/2011 12:31 PM

I don't have a formal document, but my understanding is that a system that is only occasionally used should be turned on and run at least once a month to help minimize clogging. The run should at least include running of the calibration beads, which involves selecting Express from the Experiments tab and then Setup and Calibration. The result screen should have all green check marks, and no red Xs.

After power up, a CLEAN should be run, and then a FLUSH after that. When that is done, run calibration beads, after that is completed, then select Instrument Off with the mouse. The system will shutdown properly. Not really a need to hit the on/off button on the side of the system. Just touch the screen to turn it on.

I hope this email isn't too convoluted. Basically once a month turn on the system and run CLEAN, then FLUSH, then Calibration Beads, then Instrument Off.

Without the bar code reader, running the calibration beads has a few more steps in the process to prepare the sample tube with beads. You could pipette 1 ml of buffer into a sample tube, add a drop of beads and vortex them, and do Express, Setup, Calibration, or you could use the system to add buffer and mix the beads by following these instructions from the Help Menu on the system:

Pages 56 and 57, Chapter 3.6.2 in the User Manual describes the manual calibration procedure too.

Custom mode users and administrators can perform manual calibration.

Note: Calibration beads must be pre-diluted and mixed before performing this procedure. The MACSQuant Analyzer can perform pre-dilution and mixing of calibration beads.

Setting the dilution and mixing of the calibration beads prior to calibration

Dilution of the calibration beads can be performed by the MACSQuant Analyzer.

1) Select the Autolabel tab within the Experiment tab.
2) Click **<add…>**. This will introduce a Reagent dialog box.
3) Select **S1** or **S2** and prebuffer and adjust the dilution appropriately, for example, 10:1 with no incubation time. Click **Apply**.
4) Depending on the above settings, click the radio button **Buffer A** or **Buffer B** in the Autolabel menu.

Manual calibration

1) **In the Custom mode, select the Experiment tab on the left side of the screen.**

Figure 3.38 Setting-up calibration in Custom mode using the Express option (radio button).

2) Select the **Settings** tab in the lower section of the panel and click on the **Express** radio button.
3) Click the **Type** pull-down list and select **Setup.** Similarly, choose **Calibration** from the **Mode** pull-down list.
4) Click on the **Start Measurement** button, . This will start the calibration process.

Flow Cytometer: Quant, Maintenance, Oct 2012

From: Robert Wegener [mailto:robertwe@miltenyibiotec.com]
Sent: Wednesday, October 10, 2012 7:33 PM
To: Boedeker, Elizabeth D.
Subject: RE: Automacs Pro serial number 785 ETA Update

Hello Betsy,

Here is the report on the recently completed annual preventive maintenance protocol for your Automacs Pro serial number 0785. Due to the low number of separations on this unit for the past year, many parts did not need to be replaced. These new parts that did not need to be put into the system, belong to you, and were put in the Automacs drawer by the system. During this coming year, on the rare occasion this system encounters an error, these parts will be accessible for you to use if necessary. The system passed all the protocol tests, now has the latest software, and continues to run within our quality control specifications.

I will look forward to the next visit in the near future, when it will be time for the preventive maintenance protocol to be done on the MacsQuant.

Thanks for having me in your lab,. See you again in the near future.

Thanks.
Kind Regards,
Robert Wegener
Field Service Engineer

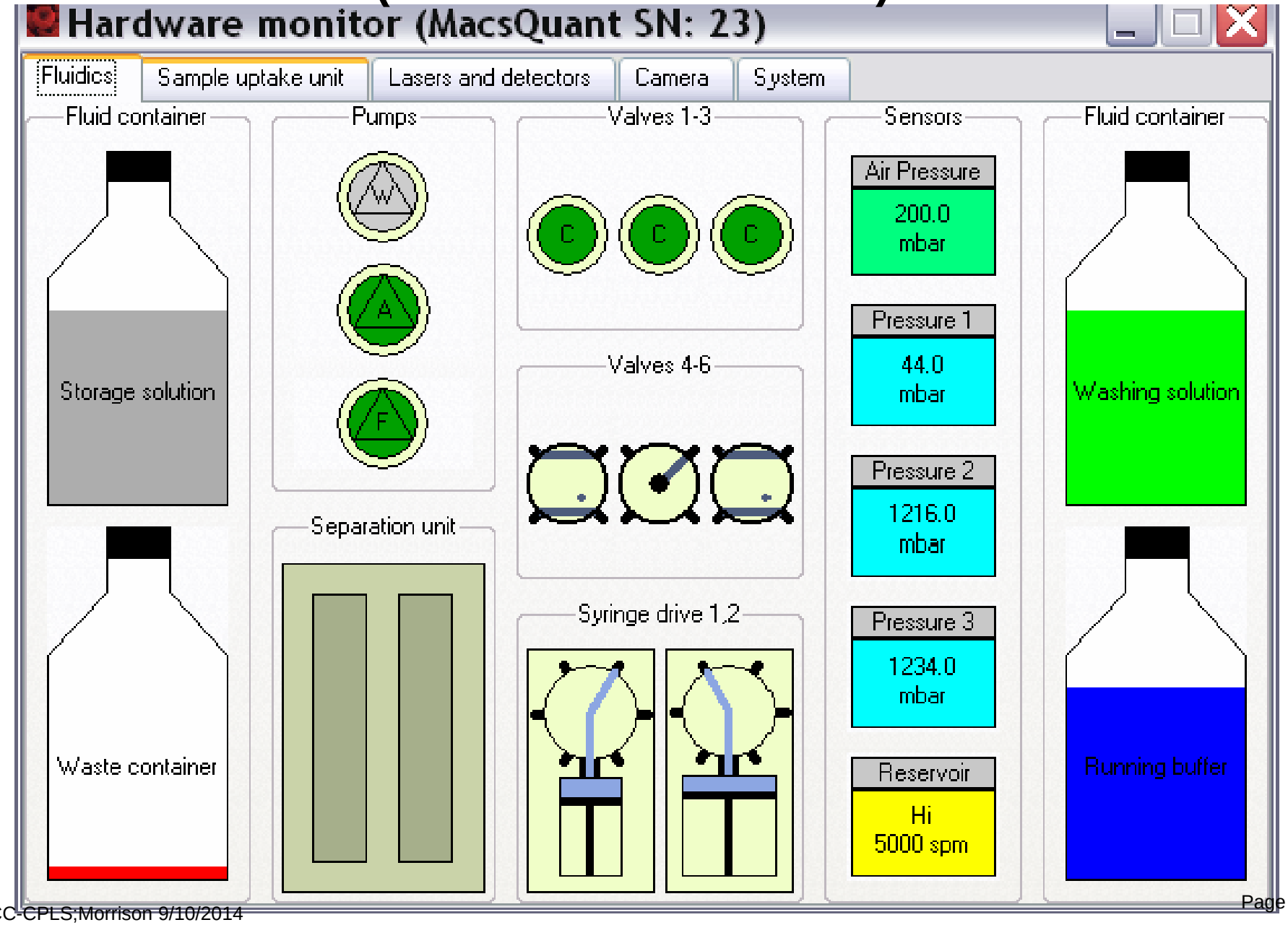
Instrument Service Hot Line: 866-426-1194
Instrument Service Email: servicegroup@miltenyibiotec.com

Miltenyi Biotec, Inc.
2303 Lindbergh Street
Auburn, CA 95602

www.miltenyibiotec.com

Hotlink to MACSQuant Service report for this period.

Flow Cytometry: MACQuant; Real time Hardware Monitor (access via View menu)



Flow Cytometry: autoMACS Pro Separator, Magnetic Cell Sorting

The autoMACS® Pro Separator is a benchtop instrument for high-speed automated magnetic cell sorting of multiple samples under standardized conditions. Designed for the selection of target cells in a fully automated, walk-away fashion. It combines all the benefits of the proven autoMACS Technology with novel features such as automated magnetic labeling and the sensor-controlled processing of multiple samples. The instrument is operated via touchscreen and intuitive screen menus. At the click of a button, multisample labeling and cell separation is performed, minimizing hands-on time. Sample integrity is also maintained by use of MACS Cooling Tube Racks that allow for cooling of samples and eluated fractions. With its compact size, the autoMACS Pro Separator easily fits into a standard laminar flow hood or safety cabinet.

- **Autolabeling – fully automated magnetic labeling of samples.**
- **Multisample processing – up to 6 samples can be processed in a single batch.**
- **Versatile – compatible with more than 250 MACS® Cell Separation Reagents.**
- **Gentle – MACS Technology and Cooling Tube Racks sustain cell viability.**
- **Advanced – sensor-controlled process for safe operation and easy monitoring of the instrument status, even from a distance.**

MACS® MiniSampler, MACS Chill Rack 15, and MACS Reagent Rack 4

Flow Cytometry: autoMACS Pro Separator, Magnetic Cell Sorting, User Manuals and Guide

Hotlink to autoMACS Pro Separator User Manual ….. Pdf (5mb)

Hotlink to autoMACS Pro Separtor QuickStart ….. Pdf (<1mb)

Flow Cytometry: autoMACS Separator Solutions

5.1.1 Solutions

For daily operation, the following solutions are required: Running Buffer, Washing Solution, and ethanol.

Solution	Description	Color code	Capacity	Order no.
Running Buffer	autoMACS Running Buffer or MACS Separation Buffer	Blue	6x1.5 L for 6x15 separations and rinsing cycles	130-091-221
Washing Solution	autoMACS Pro Washing Solution	Green	6x1.5 L for 6x15 rinsing cycles (Rinse, Sleep, Store, Safe)	130-092-987
Storage solution	70% v/v ethanol in distilled water (prepared from absolute ethanol)	Black		Not available

Table 5.1: Solutions required for daily operation.

Solution bottles can be identified by color code and symbols (table 3.1, Symbols and color-coding of fluid containers).
For proper operation of the autoMACS Pro Separator, solution containers must be filled with a minimum volume of 150–200 mL.
It is recommended to use ready-to-use MACS Buffers or fresh,

Flow Cytometer: autoMACS Pro Service Report Oct 2011

Hotlink to autoMACS Pro Service Protocol Report 5 pgs. Oct 2011

Service report

ID: Type: autoMACS Pro S/N: 0785

Miltenyi Biotec, Inc.
2303 University Dr
Auburn, CA 95603, USA
Phone: 1-800-FOR-MACS
Fax/Attn: 530-888-8687
Email: macs@miltenyibiotec.com

Service Engineer: Robert Wegener Service Date: 10.10.2011

Customer
Address St. Louis Community College
1005 North Warson Road
St. Louis, MO. 63132

Contact person Elizabeth Boedeker
Phone Number 314-613-4966

Device
Software version 2.1.02
Ownership
Service contract (No./Type) Original + 1 Yr Premium
Warranty end date 31.12.2012
Number of Separations 3

Type of request
- ☐ Installation
- ☒ Maintenance / STC
- ☐ Repair
- ☐ Deinstallation
- ☒ Update / Upgrade
- ☐ _____

☐ In-House ☒ On-Site
☐ Review ☐ QC

Error message / code Complaint-/Order No.: _____

Annual Preventive Maintenance Due. Software Update Due..

Error diagnostics

Service activities

Performed Annual Preventive Maintenance. Performed software update. See Service Protocol.

Spare parts

Part number	Description	Lot number	Serial No.	Qty.

☐ Disassembly

Lot number	Serial No.	Qty.

☐ Assembly

☐ disposition of defect parts ☐ discarded on site ☐ MB BergGL ☐ _____

Measuring equipment

Item	DP	Item	DP
☐ Multimeter		☐	
☐ Safety Tester		☐	
☐		☐	

Working time

Service performed by	Date	Start time	End time	Working hours	Travel hours	Kilometers
Robert Wegener	10 Oct 2011	1300	1645	3.75	5.5	340

Confirmation

This device is released for further use ☒ Yes ☐ No
Service report handed over to customer ☐ Yes ☒ Deliver by mail

Service work was executed as ordered

St. Louis, Mo. 10 Oct 2011
Location Date

Engineer
Signature

Customer
Signature

Original for customer Copy for internal Service Copy for Engineer Version 07

Flow Cytometer: Quant, Maintenance Contract 2012

From: Noah Keefer [mailto:noahk@miltenyibiotec.com]
Sent: Tuesday, June 05, 2012 3:27 PM
To: Lauren Handley; Boedeker, Elizabeth D.
Subject: RE: MACSQuant Stuff

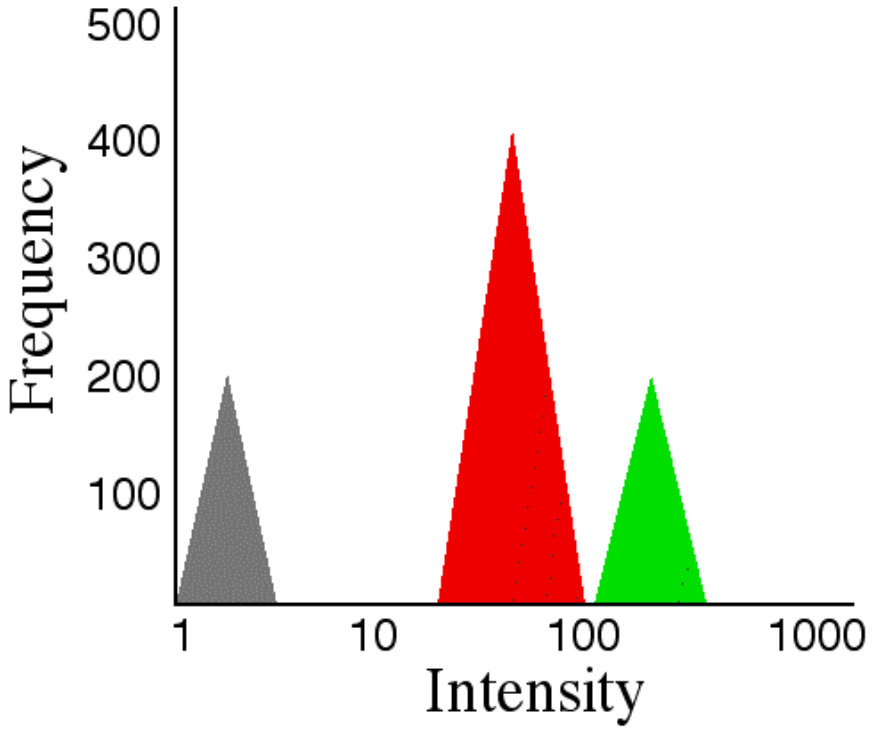
Dear Elizabeth Boedeker,
Miltenyi Biotec Inc. is pleased to provide you with a quote for Premium service agreements covering your autoMACS Pro unit #0785 and MACSquant unit #2255. The current service agreements for your units are set to expire on 12/31/2012. This agreement will provide you with planned maintenance and technical support that will ensure reliability, productivity, and consistency when utilizing your Miltenyi Biotec instrument.
The attached quote was prepared for you at the request of your technical sales consultant, Lauren Handley, if you have any questions please feel free to contact us.
With kind regards,
Noah Keefer
Field Service Support
1.866.426.1194
noahk@miltenyibiotec.com

From: Lauren Handley
Sent: Tuesday, June 05, 2012 10:44 AM
To: Boedeker, Elizabeth D.
Cc: Noah Keefer
Subject: Re: MACSQuant Stuff

Hotlink to MACSQuant and Separator Maintenance Contract 2012 Fwd… pdf

Flow Cytometer: Misc Reference Info Follows

Flow Cytometry: Education; Example; Quantifying Data, Frequency vs. Intensity

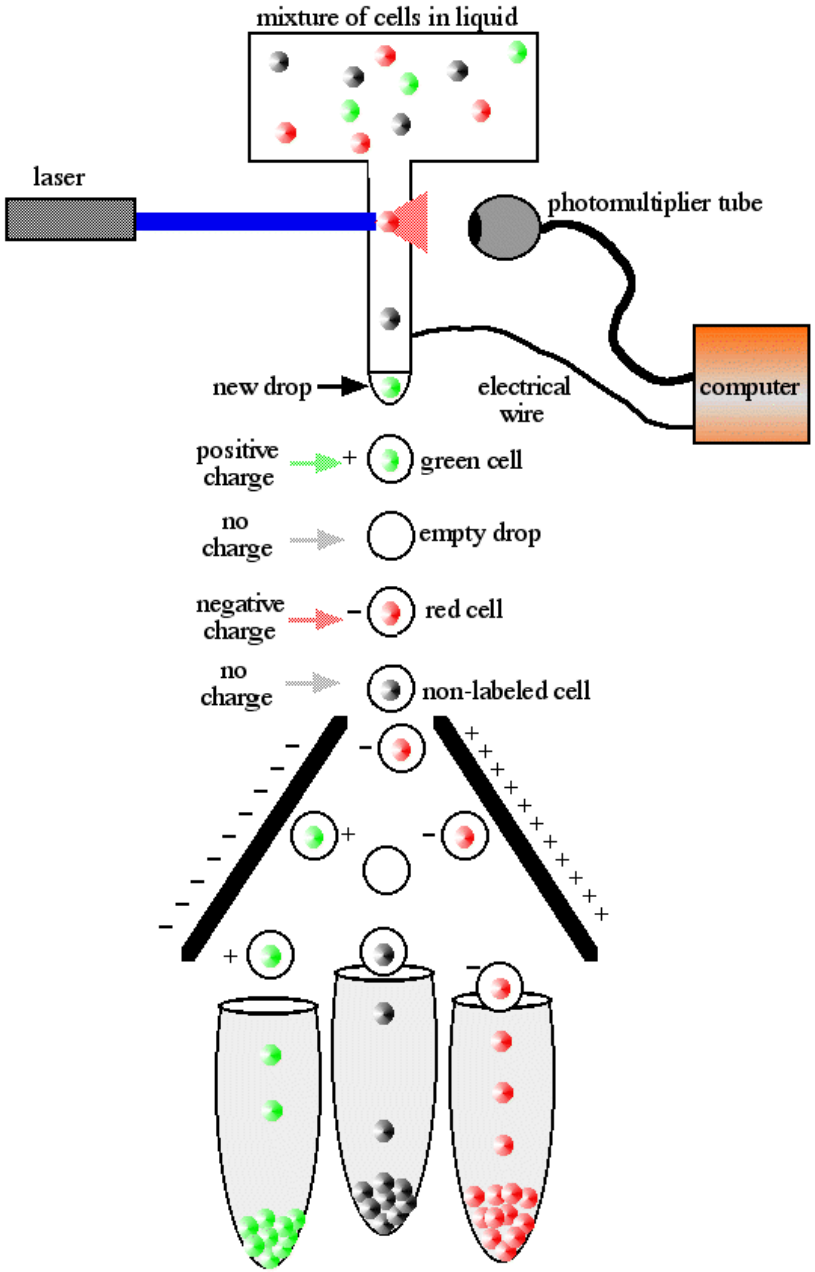


FACS data collected by the computer can be displayed in two different ways. What we want to know is how many cells of each color were sorted. In the first example we see the intensity of the green or red fluorescence is plotted on the X-axis and the number of cells with each level of flourescence is plotted on the Y-axis. In this example, there were twice as many red cells sorted as green or unlabeled cells, but the level of light was greater from the green cells than the red cells. This method is best if all cells are either green, red or unlabeled and no cells are labeled both colors.

Quantifying FACS data. This graph shows the number of cells (X-axis) and the level of fluorescence emitted (Y-axis) by the labeled cells. Many different colors can be plotted on this graph, but cells should not be labeled by more than one color.

Flow Cytometry: Education; FACS (Fluorescence-activated cell sorting)

Description of Method



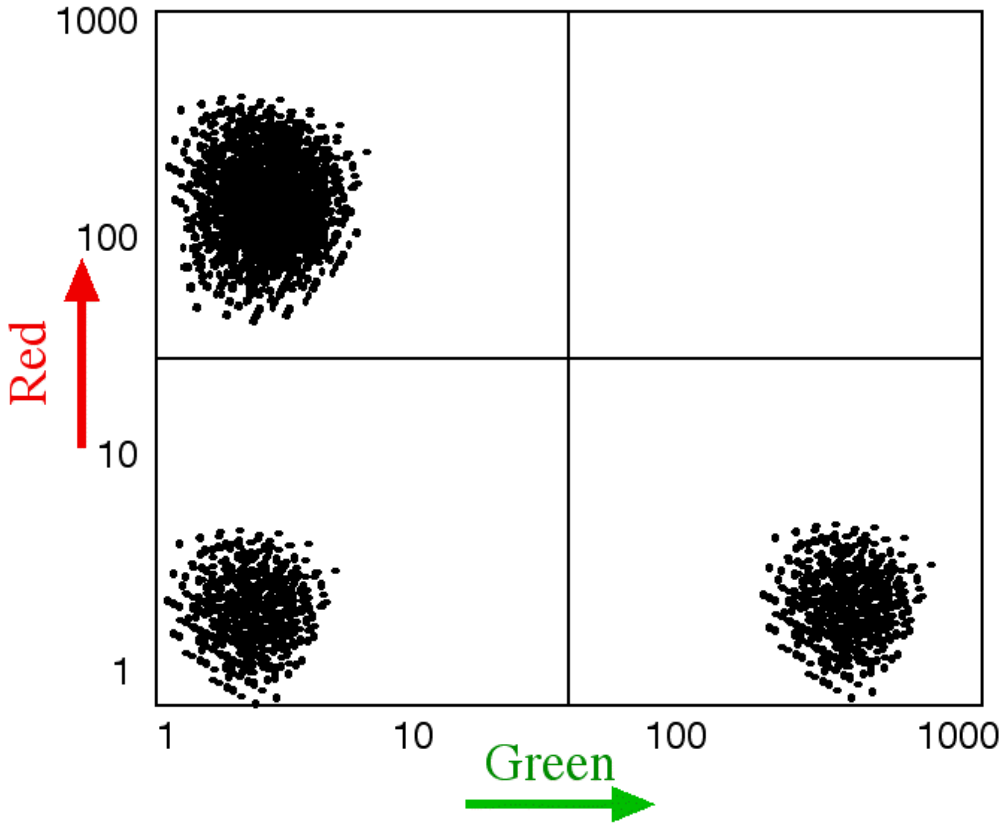
In multicellular organisms, all the cells are identical in their DNA but the proteins vary tremendously. Therefore, it would be very useful if we could separate cells that are phenotypically different from each other. In addition, it would be great to know how many cells expressed proteins of interest, and how much of this protein they expressed.

The process begins by placing the cells into a flask and forcing the cells to enter a small nozzle one at a time . The cells travel down the nozzle which is vibrated at an optimal frequency to produce drops at fixed distance from the nozzle. As the cells flow down the stream of liquid, they are scanned by a laser (blue light in figure 1). Some of the laser light is scattered (red cone emanating from the red cell) by the cells and this is used to count the cells. This scattered light can also be used to measure the size of the cells.

If you wanted to separate a subpopulation of cells, you could do so by tagging those of interest with an antibody linked to a fluorescent dye. The antibody is bound to a protein that is uniquely expressed in the cells you want to separate. The laser light excites the dye which emits a color of light that is detected by the photomultiplier tube, or light detector. By collecting the information from the light (scatter and fluorescence) a computer can determine which cells are to be separated and collected.

The final step is sorting the cells which is accomplished by electrical charge. The computer determines how the cells will be sorted before the drop forms at the end of the stream. As the drop forms, an electrical charge is applied to the stream and the newly formed drop will form with a charge. This charged drop is then deflected left or right by charged electrodes and into waiting sample tubes. Drops that contain no cells are sent into the waste tube. The end result is htree tubes with pure subpopulations of cells. The number of cells is each tube is known and the level of fluorescence is also recorded for each cell.

Flow Cytometry: Education; FACS, Quantifying Data; Comparing Intensity of Types



The X-axis plots the intensity of green fluorescence while the Y-axis plots the intensity of red fluorescence. The individual black dots represent individual cells and we are not supposed to count the dots but just look at the relative density of dots in each quadrant. From this graph, we can see there were no cells labeled both red and green (top right) and many cells that were unlabeled (bottom left). The number of green-labeled cells (bottom right) is about the same as the number of unlabeled cells, but the number of red-labeled cells (top left) is about twice that of the other two categories of cells. Again, we can see that the level of fluorescence was higher in the green cells than the red ones. This method of graphing the data is especially useful if cells are present that have been labeled both red and green.

Flow Cytometry: Educational Info, Videos

Hotlink to Flow Cytometry Core Facility Biomedical Instrumentation Center, Uniformed Services University*… pdf*

Hotlink to Invitrogen Tutorial Web Site ; Narrated Powerpoint Slide Shows *Introduction to Flow Cytometry*

Flow Cytometry: MACSQuant and autoMACS Separator

MACSQuant Analyzer and autoMACS pro-separator located in the Instrumentation Room at BRDG Park

The MACSQuant® Analyzer is a compact bench-top flow cytometer that is fully automated in all phases from setup and analysis to maintenance. Flow cytometry is the latest technology for cell, protein, and molecular detection and analysis and is based on optical and electrical detection in a very narrow nozzle of fluid flow. The MACSQuant analyzer performs absolute cell counting, multi-parameter, and rare cell analysis using three different lasers and is capable of detecting up to seven different fluorescent signals in the flow stream. The MACSQuantify™ Software interprets the signals from the flow and aids the user in further comprehensive analysis. Other unique features of this instrument include automated adding of reagents prior to sampling and auto-sampling of many samples. The autoMACS Pro Separator unit is used to attach magnetic beads to surface proteins on cultured cells. The culture can thus be enhanced and sorted to contain a much higher percentage of surface protein positive cells for further propagation or analysis using the MACSQuant analyzer.